SPECIFICATION

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0008] contained in the specification of the above-identified patent application with the following annotated replacement paragraph [0008].

[0008] Figures 1 through 3 illustrate the present invention power end seal **10**, and are referred to in this description. The present invention power end seal **10** is designed for, among other purposes, use in gear boxes (not shown) for reciprocating pumps to retain the lubricants used within the gear boxes. Conventional seals used in gear boxes can exhibit special sealing concerns due to high duty cycles, extension rods on pump power ends, and other rod and shaft misalignment in low system pressure applications. The present invention power end seal **10** is a composite seal that optimizes the properties of elastomers and plastic or elastomer composite materials. The present invention power end seal **10** is generally formed in the shape [[comprised]] of [[a]] an asymmetrical U-shaped, circular seal body **12** having a plurality of arced or tangentially-positioned ribs **14** disposed between an inner diameter wall **16** and the outer diameter wall **18**. Further, the present invention power end seal **10** includes an inner diameter dynamic seal **20** consisting of a plastic or elastomer filled composite material and the outer diameter rubber static seal **22**. The plurality of ribs **14** are preferably made of the same elastomer material from which the seal body **12** is comprised. The U-shaped circular seal body **12** is asymmetrical in that the outer diameter wall **18** is longer in length as compared to the inner diameter

wall **16**, as observed in an extended length section **18b**. However, each wall **16**, **18** includes an equal length section, **16a**, **18a**, both of which are equal in linear length. The extended length section **18b** extends in length, past the equal length section **18a**. It is within the equal length sections, **16a**, **18a**, that the ribs **14** are engaged. The extended length section **18b** provides the improvement of providing additional surface area **18b** of the outer diameter static seal **22** to contact and become affixed, or constrained axially, within the packing bore or gland (not shown) to allow for additional flexibility in the movement of the inner diameter dynamic seal **20**. The extended length section **18b** provides another distinct advantage when used in "stacked" applications. When using the present invention power end seal **10** in "stacked" or stacking applications, where other seal components (not shown) may be axially stacked on top of the seal body **12**, the extended length section **18b**, by virtue of its longer length, provides additional spacing between the stacked component (not shown) and the inner diameter dynamic seal **20**, to prevent contact and interference between the stacked component (not shown) and the dynamic seal **20**. The added spacing between the stacked component (not shown) and the dynamic seal **20** also allows the dynamic seal **20** to move with greater flexibility and to maintain its seal with the connecting rod (not shown). One of the primary benefits of the present invention power end seal **10** is its flexibility to compensate for run-out, or eccentricity. In other words, the power end seal **10** can withstand a large amount of deflection and still maintain static interference in the packing bore (not shown). Another benefit of the present invention power end seal **10** is that it can withstand the above-described deflection while minimizing radial squeeze to reduce heat build up and reduce seal wear. The inner dynamic

seal **20** being comprised of plastic or elastomer filled composite material, i.e., for example PTFE, bronze filled PTFE, carbon filled PTFE or aramid fiber filled HNBR (rubber), significantly reduces the wear of the dynamic seal **20** of the seal body **12** while maintaining an effective and flexible dynamic seal **20** and static seal **22**. The plurality of tangentially positioned ribs **14** provide flexible tension between the inner wall **16** and outer wall **18** of the power end seal **10** to maintain static interference in the packing gland (not shown), which is especially useful where there is no system pressure in the power ends of the gear boxes (not shown). An open, asymmetrical u-shaped channel portion **28** is defined by the internal space between the inner diameter wall **16** and the outer diameter wall **18**. A seat portion **23** is defined by the external surface of the seal body **12** affixed to and disposed between a lower end of the inner diameter wall portion **16** and a [[the]] lower end of the outer wall portion **18**. The seat portion **23** is perpendicularly affixed to the wall portions **16**, **18** of the seal body **12**, such that the axial alignment **16x** of the inner wall **16** is generally parallel with respect to the axial alignment **18x** of the outer wall **18**. During the implementation and use of the present invention power end seal **10**, the inner diameter wall **16** and the outer diameter wall **18** remain generally parallel with one another, wherein such alignment obviates the need for a back-up ring or other mating components necessary to combat deflection of seals having tapered or inclined cross sections. The plurality of ribs **14** are tangentially positioned between the inner diameter wall **16** and the outer diameter wall **18** and are attached to a top surface **30** of the channel portion **28**. The present invention power end seal **10** can be used in operating temperatures ranging from –20 to 300 degrees F. Various parts of the power

end seal **10** are produced from the processes of compression, injection or transfer molded elastomer. Adhesion of the inner diameter wall **16** and outer diameter wall **18** is achieved by adhesive bonding in the molding process for dissimilar materials. Similar materials such as elastomer to fiber filled elastomer is generally achieved by the process of co-vulcanization. The use of higher modulus materials for the inner diameter dynamic seal surface **20**, generally provides that the inner dynamic seal surface **20** does not pull away from the connecting rod (not shown) during operation of the pump (not shown). Rather, diametrical tension causes the inner diameter dynamic seal **20** to travel with the connecting rod (not shown) thus reducing leakage within the gear box (not shown). The use of plastic or [[of]] elastomer filled composite material on the inner diameter dynamic seal **20** reduces the footprint or exposure of the higher friction elastomer used to form the seal body **12**. Additionally, the present invention power end seal **10** discloses a plurality of [[various]] lip profiles **24, 26** at the upper ends of the inner wall **16** and outer wall **18**. Different lip profiles can be formed to the inner wall **16** and outer wall **18** depending upon the specific application for the power end seal **10**. The inner wall **16** and the outer wall **18** are not flat, but rather include lip profiles **24, 26** which protrude outwardly, away from the walls **16, 18**. The first lip profile **24** extends outward radially from the inner diameter surface of an upper end of the inner wall **16**. The second lip profile **26** extends outward radially from the outer diameter surface of an upper end of the outer wall **18**. The lip profiles **24, 26** are attached to the present invention power end seal **10** such that the circular, asymmetrical u-shaped seal body **12** includes the first lip profile **24** affixed to the upper end of the of the inner composite dynamic seal **20** and the second lip profile **26** is

affixed to the upper end of the of the extended section **18b** of the outer rubber static seal **22**. The first lip profile **24** protrudes or bulges from the inner diameter dynamic seal surface **20** to make additional sealing contact with the connecting rod (not shown), as the connecting rod engages the inner diameter dynamic seal surface **20**. The second lip profile **26** protrudes or bulges from the outer diameter rubber static seal surface **22** to make additional sealing contact with the packing bore or gland (not shown). It will be appreciated that these and other embodiments may be provided as a power end seal for use in sealing gear boxes of heavy duty reciprocating pumps. Additional embodiments become readily apparent in view of the present invention as described herein above. Having described the invention above various modifications of the techniques, procedures and materials will be apparent to those skilled in the art. It is intended that all such variations within the scope and spirit of the appended claims be embraced thereby.